

Notice of Allowability

Application No.

09/783,711

Examiner

Jared J. Fureman

Applicant(s)

STUTTARD, DAVID MICHAEL

Art Unit

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the telephone interview on 7/21/2003.
2. ☒ The allowed claim(s) is/are 1-14, 18 and 20-29.
3. ☒ The drawings filed on 14 February 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>15</u> |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____ | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |

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DETAILED ACTION

Receipt is acknowledged of the amendment, filed on 7/3/2003, which has been entered in the file. Claims 1-14, 18 and 20-29 are pending.

Examiner's amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Patricia A. Limbach (50,295) on 7/21/2003. During the telephone interview, Ms. Limbach authorized an examiner's amendment to claims 1, 5, 9, 18, and 26, in order to place the application into condition for allowance. The examiner's amendment to claims 1, 5, 9, and 26 was required in order to remove any claim objections and/or rejections under 35 USC 112 2nd paragraph. The examiner's amendment to claim 18 was required in order to remove any claim objections and to make claim 18 correspond to the marked up version of claim 18 provided in the amendment filed on 11/21/2002 (amendment A, paper number 9), since the clean version of claim 18 did not correspond to the marked-up version of claim 18 (the marked up version of claim 18 is what the examiner indicated was allowable, see the statement of reasons for allowance in the office action mailed 4/3/2003, paper number 13).

The application has been amended as follows:

In the claims:

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Claim 1, line 1: ":", " has been replaced with --;--.

Claim 5, line 1: "the" (third occurrence) has been replaced with --an--, in order to avoid a lack of proper antecedent basis for "the internal surface".

Claim 9, line 1: "the-" has been replaced with --the--.

Claim 18 has been replaced with the following rewritten claim 18 (see the version with markings to show changes made).

18. (twice amended) A method of forming a gas sensor comprising the steps of:

providing an optical source for emitting radiation therefrom,

providing a detector sensitive to radiation emitted from the source,

providing an optical pathway extending between the source and the detector,

providing a chamber having optically reflective surfaces defining a substantially circular portion of the optical pathway and a substantially radial portion of the optical pathway; and

providing at least one reflector oriented generally at an oblique angle to the substantially circular portion of the optical pathway to separate the substantially circular portion of the optical pathway and the substantially radial portion of the optical pathway.

Claim 26, line 1: "the-" has been replaced with --the--.

Allowable Subject Matter

1. Claims 1-14, 18, and 20-29 have been allowed over the prior art of record.

2. The following is a statement of reasons for allowance: The prior art of record, taken alone or in combination, fails to teach or fairly suggest: a gas sensor including a chamber having optically reflective surfaces defining a substantially circular portion of the optical pathway and a substantially radial portion of the optical pathway and at least one reflector oriented generally at an oblique angle to the substantially circular portion of the optical pathway to separate the substantially circular portion of the optical pathway and the substantially radial portion of the optical pathway; and a gas sensor wherein the gas permeable member comprises a disc having a radius greater than a radius of the inner circumferential wall and less than a radius of the outer circumferential wall, in combination with the other claimed elements as set forth in the claims.

Ito (US 4,700,079, previously cited) teaches a gas sensor having a source (1) and a detector (5) located at the beginning and end, respectively, of a chamber (4), therefore, Ito does not require a second end wall to reflect light to the detector. Thus, without the benefit of applicant's teachings, there is no motivation to modify the sensor as taught by Ito to include a reflector oriented generally at an oblique angle to a substantially circular portion to separate the substantially circular portion of the optical pathway and a substantially radial portion of the optical pathway, as set forth in the claims.

Wong (US 5,060,508, previously cited) teaches a cover/gas permeable member (second half 52) that has the same dimensions as the base (first half 50). Thus, Wong fails to teach the gas permeable member comprises a disc having a radius greater than a radius of the inner circumferential wall and less than a radius of the outer

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circumferential wall. Furthermore, without the benefit of applicant's teachings, there is no motivation to modify Wong to provide a gas permeable member comprising a disc having a radius greater than a radius of the inner circumferential wall and less than a radius of the outer circumferential wall, as set forth in the claims.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Clausen et al (US 2002/0063216 A1) teaches an optical gas sensor having a circumferential chamber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (703) 305-0424. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (703) 305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

July 21, 2003

Jared J. Fureman
Jared J. Fureman
Art Unit 2876

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Version with markings to show changes made:

18. (twice amended) A method of forming a gas sensor comprising the steps of:
- providing an optical source for emitting radiation therefrom [and],
 - providing a detector sensitive to radiation [in a bandwidth associated with an absorption spectra of a selected gas for detection] emitted from the source [at opposite ends of a circumferential chamber extending around the periphery of a sensor housing and having optically reflective surfaces along the length thereof, the chamber being configured to bend light in a substantially circular path],
 - providing an optical pathway extending between the source and the detector,
 - providing a chamber having optically reflective surfaces defining a substantially circular portion of the optical pathway and a substantially radial portion of the optical pathway; and
 - providing at least one reflector oriented generally at an oblique angle to the substantially circular portion of the optical pathway to separate the substantially circular portion of the optical pathway and the substantially radial portion of the optical pathway.

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